

ABSTRACT

A liquid crystal element including a liquid crystal cell that has transparent substrates having electrodes and a liquid crystal layer sandwiched between the substrates, the liquid crystal cell having a retardation value for a linearly polarized light having a wavelength of λ incident and transmitting through the liquid crystal cell, the retardation value changing from R_1 to R_2 ($R_1 > R_2 > 0$) when a first voltage V_1 applied between the electrodes is changed to a second voltage V_2 ($V_1 \neq V_2$). The liquid crystal element also includes a phase plate having a retardation value R for a linearly polarized light having the wavelength of λ , the retardation value R satisfying a relation $R + R_v = m \times \lambda$ (m : integer) with a retardation value R_v generated by a third voltage satisfying $R_1 \geq R_v \geq R_2$.